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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,724	01/08/2002	Scott Lang	8364/85922	5230

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PATENT SERVICES GROUP  
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EXAMINER
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DEJESUS, LYDIA M

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/041,724

Applicant(s)

LANG ET AL.

Examiner

Lydia M. De Jesús

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 26-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 26, 33, 38 and 40 are objected to because of the following informalities:

On claim 26, line 2, it seems that the terms “source” and “sensor” should be exchanged in order to clarify the claim language, such that the limitation reads --a beam sensor, and a beam source configured to project a radiant energy beam on a path therebetween through at least part of a region being monitored--. Similarly, on line 2 of claim 33, it appears that the terms “source” and “sensor” should be exchanged to be consistent with the limitations recited in said claim.

On claim 38, the limitation “a projected beam-the obscuration detector” is confusing. In view of the language of the remaining claims, it appears that Applicant intends to recite --a projected-beam obscuration detector--. Please clarify.

On claim 40, the term “state” has been misspelled on line 4 and line 5.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 26-29, 30-32 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 is indefinite due to the limitation “a beam alignment test” because the claim language fails to clearly define an axis or reference to which the beam will be aligned in said alignment test.

Claims 27-29 are rejected due to their dependence upon claim 26.

Claim 30 is indefinite due to the limitation “a beam alignment test” because the claim language fails to clearly set forth an axis or reference to which the beam will be aligned in said alignment test.

Claims 31 and 32 are rejected due to their dependence upon claim 30.

Similarly, claim 43 is indefinite due to the limitation “to automatically test beam alignment” because it is unclear with respect to which structure the beam must be aligned.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 33-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, it appears that the disclosure fails to provide support for the limitations regarding a path having a length selected from a plurality of lengths and regarding the selection of an obscuration state of the obscuration member based on path length, as recited in claim 33.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for

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patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 26, 29-32, 38 and 40-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwartz et al. [hereinafter Schwartz].

Schwartz discloses a projected beam detector comprising: a beam sensor [16], and a beam source [14] configured to project a radiant energy beam on a path [18] therebetween through at least part of a region being monitored; a controllable optical obscuration member i.e., light valve [20] or LCD module [58], at least in part in the path, where the member has an obscuration state and a non-obscuration state; a control circuit [24/50] coupled to the source, the sensor, and the member and inherently including circuits to switch the member from a non-obscuration state to an obscuration state to test beam alignment (see lines 66-69 of column 4), whereby an electrical signal coupled from the sensor to the control circuit is indicative of results of a beam alignment test/calibration of obscuration member (see line 4 through line 68 of column 8).

Moreover, the obscuration member comprises an element/light valve [20] having an electrically alterable transmission characteristic wherein in response to a control electrical signal, the transmission characteristic switches from the optically transmissive condition to the less optically transmissive condition (see for example Fig. 8) to conduct an operational test of optical density measurement apparatus [12].

With respect to claims 30-32 and 38: The method steps recited in said claims will be performed during the normal operation of the detector disclosed by Schwartz.

With respect to claims 40-42: Schwartz discloses a test apparatus for a projected beam-type detector comprising: a control circuit [24/ 50] which can be coupled to the detector; an electrically controllable obscuration member i.e., light valve [20] or LCD module [58] which has at least first and second states, coupled to the control circuit [24], the first state corresponds to a normal operational state, the second state corresponding to partial optical obscuration, a test state, as illustrated in Figure 8, where the control circuit inherently includes circuitry to test the detector by switching the obscuration member from the first, normal operational state to the second, test state to alter a beam transmission characteristic whereupon an output indicative of the test is coupled to control circuit. Said test apparatus includes an apparatus to alter the beam characteristic by altering an optical transmissive characteristic of the member. Moreover, in said test apparatus, the obscuration member [20/58] includes a plurality of different test states with each test state associated with a predetermined beam path length between an emitter and a sensor i.e., predetermined length of path 18, the control circuit including circuitry for selecting a test state responsive to a determined beam path length. Said obscuration member includes a beam alignment test state and the control circuit includes circuitry to select that test to automatically test beam alignment (see line 4 through line 68 of column 8).

8. Claims 26-28, 30-32 rejected under 35 U.S.C. 102(e) as being anticipated by Graham [U.S. Patent 6,359,278 B1].

Graham discloses a projected beam detector comprising: a beam sensor [18], and a beam source [16] configured to project a radiant energy beam on a path therebetween through at least part of a region being monitored; a controllable optical obscuration member/attenuator [28] at least in part in the path, where the member has an obscuration state and a non-obscuration state;

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and inherently comprises a control circuit coupled to the source, the sensor, and the member and including circuits to switch the member from a non-obscuration state to an obscuration state to test beam alignment, whereby an electrical signal coupled from the sensor to the control circuit is indicative of results of a beam alignment test (see lines 50-63 of column 1 and lines 50-67 of column 3).

The obscuration member is movable between the states by a transducer, wherein the transducer comprises an electrically driven source of rotary motion, as illustrated in Figure 3.

With respect to claims 30-32: The method steps recited in said claims will be performed during the normal operation of the detector disclosed by Graham.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Hartman et al. [U.S. Patent 4,126,396, hereinafter Hartmann].

Schwartz discloses a projected-beam detector apparatus as claimed, as stated above in paragraph 7, but fails to disclose maintaining a record of test results and repeating the steps at least intermittently.

However, Hartmann teaches maintaining a record of test results of an optical detector, and repeating the steps at least intermittently (see lines 56-64 of column 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the apparatus disclosed by Schwartz to further record the test results and repeat the steps of the operational test, at least intermittently, as taught by Hartmann, in order to identify offsets caused by variations in the ambient conditions of the detector, such as a change in ambient temperature.

11. Claims 33- 35 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Taylor et al. [U.S. Patent 5,828,458, hereinafter Taylor].

Schwartz discloses a projected beam detector comprising: a beam sensor [16], and a beam source [14] configured to project a radiant energy beam on a path [18] therebetween through at least part of a region being monitored; a controllable optical obscuration member i.e., light valve [20] or LCD module [58], at least in part in the path, where the member has an obscuration state and a non-obscuration state; a control circuit [24/50] coupled to the source, the sensor, and the member and inherently including circuits to switch the member from a non-obscuration state to an obscuration state to test beam alignment (see lines 66-69 of column 4), whereby an electrical signal coupled from the sensor to the control circuit is indicative of results of a beam alignment test/calibration of obscuration member (see line 4 through line 68 of column 8).

Moreover, the obscuration member comprises an element/light valve [20] having an electrically alterable transmission characteristic wherein in response to a control electrical signal, the transmission characteristic switches from the optically transmissive condition to the less optically transmissive condition (see for example Fig. 8) to conduct an operational test of optical density measurement apparatus [12].

However, Schwartz fails to disclose said path having a length selected from a plurality of lengths and selecting an obscuration state based on path length.

Taylor shows an optical detector used as a turbidity sensor that includes the use of two transmission receivers at different distances.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of the detector apparatus disclosed by Schwartz to be configured to perform operational tests in several different path lengths i.e., corresponding to different test chambers, selecting the appropriate obscuration state, as suggested by Taylor, because absorption is generally exponential in its relationship with distance (see lines 51-56 of Taylor) to thereby increase the versatility of the detector.

12. Claims 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham in view of Taylor.

Graham discloses a projected beam detector in a gas analyzer comprising: a beam sensor [18], and a beam source [16] configured to project a radiant energy beam on a path therebetween through at least part of a region being monitored; a controllable optical obscuration member/attenuator [28] at least in part in the path, where the member has an obscuration state and a non-obscuration state; and inherently comprises a control circuit coupled to the source, the sensor, and the member and including circuits to switch the member from a non-obscuration state to an obscuration state to test beam alignment, whereby an electrical signal coupled from the sensor to the control circuit is indicative of results of a beam alignment test (see lines 50-63 of column 1 and lines 50-67 of column 3).

The obscuration member is movable between the states by a transducer, wherein the transducer comprises an electrically driven source of rotary motion, as illustrated in Figure 3.

However, Graham fails to disclose said path having a length selected from a plurality of lengths and selecting an obscuration state based on path length.

Taylor shows an optical detector used as a turbidity sensor that includes the use of two transmission receivers at different distances.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of the detector apparatus disclosed by Graham to be configured to perform operational tests in several different path lengths i.e., corresponding to gas cells of different thickness, selecting the appropriate obscuration state, as suggested by Taylor, because absorption is generally exponential in its relationship with distance (see lines 51-56 of Taylor) to thereby increase the versatility of the detector.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 26-43 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982. The examiner can normally be reached on 7:30 to 4:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

LDJ  
September 22, 2003



Diego F.F. Gutierrez  
Supervisory Patent Examiner  
Technology Center 2800